

**Grid Integration of Wind Power in New Zealand**

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New Zealand is fortunate in having a large and reliable wind resource and the use of Wind Power is growing very rapidly. This paper describes the New Zealand Electricity supply system and notes that more than 70% of current electricity supply is generated from renewable resources. About 3% is currently generated from Wind Power.

Integration of Wind Power into the grid is somewhat easier in New Zealand than in other countries due to the reliability of the wind resource, proximity to the grid, the availability of large amounts of rapidly switchable electricity and the existence of electricity supply, reserve and frequency keeping markets that can provide whole-system support. While all of the technical solutions for minimizing and utilizing VARs are deployed in New Zealand, most grid integration problems are addressed primarily through market mechanisms.

System analyses indicate that the current facilities for Wind Power integration in New Zealand would enable about 35% market penetration without the introduction of additional infrastructure.